SOME THOUGHTS ON POSITIVE DEFINITENESS IN THE CONSIDERATION OF NUCLEAR DATA COVARIANCE MATRICES*

by

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ABSTRACT

Some basic mathematical features of covariance matrices are reviewed, particularly as they relate to the property of positive definiteness. Physical implications of positive definiteness are also discussed. Consideration is given to an examination of the origins of non-positive definite matrices, to procedures which encourage the generation of positive definite matrices and to the testing of covariance matrices for positive definiteness. Attention is also given to certain problems associated with the construction of covariance matrices using information which is obtained from evaluated data files recorded in the ENDF format. Examples are provided to illustrate key points pertaining to each of the topic areas covered.

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